

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 – 20 (cancelled)

Claim 21 (new): A method of treating and reactivating a sorbent for use in capturing carbon dioxide in a fuel combustion process, wherein the combustion process is performed in a fluidized bed and the sorbent comprises a calcinable alkaline earth metal, the method comprising

- (a) calcining the sorbent in a calciner to form an alkaline earth metal oxide;
- (b) treating the alkaline earth metal oxide in a hydration reactor to form an alkaline earth metal hydroxide;
- (c) carbonating the alkaline earth metal hydroxide at a temperature of at least 600°C and subjecting the alkaline earth metal hydroxide to carbon dioxide to produce a carbonate of the alkaline earth metal and water;
- (d) calcining the alkaline earth metal carbonate to regenerate the alkaline earth metal oxide and carbon dioxide;
- (e) selectively removing the carbon dioxide produced in step (d); and
- (f) repeating steps (b) to (d) in the fluidized bed fuel combustion process utilizing the alkaline earth metal oxide product of step (d).

Claim 22 (new): The method as defined in claim 21, wherein step (b) is performed using liquid water or steam at a temperature greater than 50°C.

Claim 23 (new): The method as defined in claim 21, wherein step (d) is performed at a temperature in the range of 700°C to 1200°C.

Claim 24 (new): The method as defined in claim 22 , wherein step (b) is performed at atmospheric pressure.

Claim 25 (new): The method as defined in claim 22, wherein step (b) is performed at a pressure greater than atmospheric pressure.

Claim 26 (new): The method as defined in claim 21, wherein the alkaline earth metal carbonate is limestone.

Claim 27 (new): The method as defined in claim 21, wherein the alkaline earth metal oxide is lime.

Claim 28 (new): The method as defined in claim 21, wherein the fluidized bed comprises a pressurized fluidized bed combustor (PFBC/C).

Claim 29 (new): The method as defined in claim 21, wherein the fluidized bed comprises a circulating fluidized bed combustor (CFBC/C).